

Application Review

Issue Date: xx/xx/2018

Region: Mooresville Regional Office
County: Rowan
NC Facility ID: 8000003
Inspector's Name: Denise Hayes
Date of Last Inspection: 08/30/2017
Compliance Code: 3 / Compliance - inspection

Facility Data Applicant (Facility's Name): Carolina Stalite Company Facility Address: Carolina Stalite Company 16815 Old Beatty Ford Road Gold Hill, NC 28071 SIC: 3281 / Cut Stone And Stone Products NAICS: 327991 / Cut Stone and Stone Product Manufacturing Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V				Permit Applicability (this application only) SIP: 2D .0511, 2D .0516, 2D .0524, 2D .1402, 2D .0535, 02D .0614 (for SO ₂ & particulate matter emissions) NSPS: NSPS Subpart UUU NESHAP: NA PSD: BACT PSD Avoidance: NA NC Toxics: 2D .1100 112(r): NA Other: 2Q .0112 & 2Q .0501(d) (one step – modification)					
Contact Data				Application Data					
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Total Actual emissions in TONS/YEAR:									
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP		
2016	1618.00	699.83	1.08	9.81	38.79	1.80	0.8127 [Hydrogen chloride (hydrochlori)]		
2015	1211.11	617.91	0.9900	8.86	35.09	1.43	0.7178 [Hydrogen chloride (hydrochlori)]		
2014	1141.67	541.42	0.8000	7.02	30.71	1.25	0.6291 [Hydrogen chloride (hydrochlori)]		
2013	913.45	544.48	0.7700	6.22	46.86	1.25	0.6320 [Hydrogen chloride (hydrochlori)]		
2012	684.35	446.60	0.7900	7.19	38.24	1.02	0.5160 [Hydrogen chloride (hydrochlori)]		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> Review Engineer: Gautam Patnaik Review Engineer's Signature: _____ Date: x/xx/2018 </td> <td style="width: 50%; vertical-align: top;"> Comments / Recommendations: Issue: 03059/T49 Permit Issue Date: x/xx/2018 Permit Expiration Date: November 30, 2021 </td> </tr> </table>								Review Engineer: Gautam Patnaik Review Engineer's Signature: _____ Date: x/xx/2018	Comments / Recommendations: Issue: 03059/T49 Permit Issue Date: x/xx/2018 Permit Expiration Date: November 30, 2021
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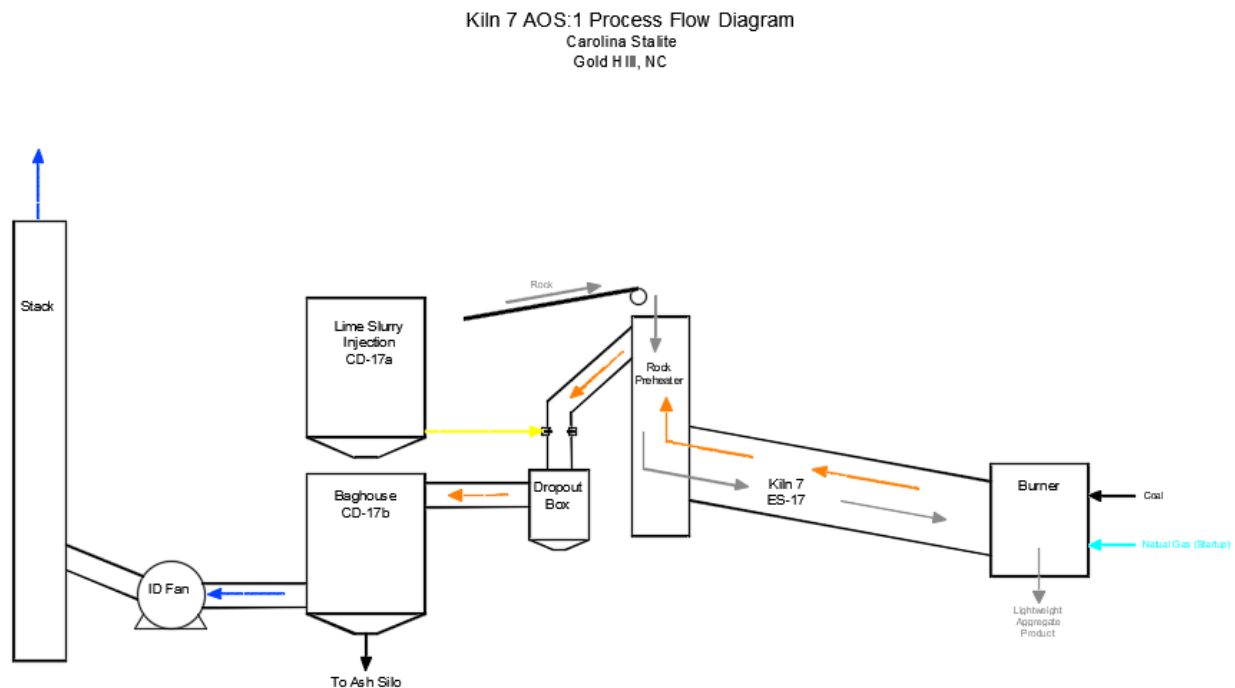
I. Facility Description.

The company operates a lightweight aggregate production facility. The high strength, low absorption lightweight aggregate is produced from slate that is expanded in large rotary kilns. The aggregate is then crushed, screened and stockpiled prior to being sold.

II. Purpose of Application

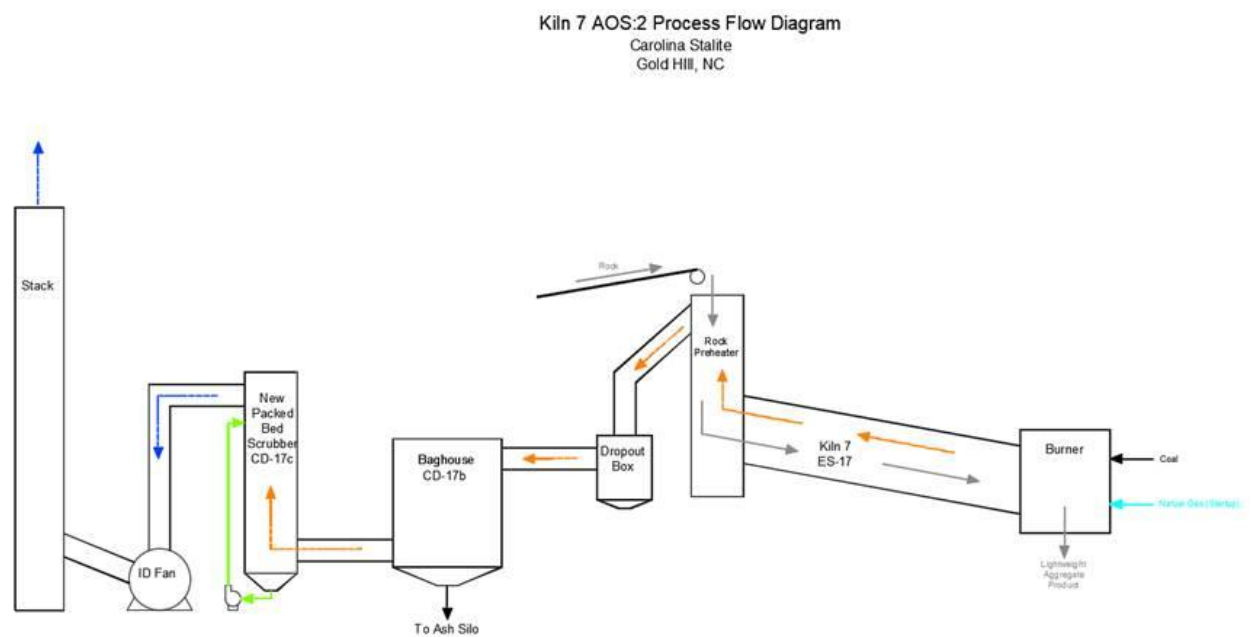
Kiln # 7 (ES-17) and associated emission control systems were originally permitted in 2004. The 2004 Kiln # 7 project was classified as a major modification under the PSD permitting regulations for **SO₂, NO_x and PM** emissions. A separate BACT analysis was conducted for each of these pollutants. The 2004 PSD BACT analysis results for Kiln 7 were (1) good combustion control of NO_x (no add-on NO_x control system) at an emission limit of 66.5 lb/hr, (2) fabric filter (baghouse) control of PM at an emission limit of 11.0 lb/hr, and (3) lime slurry injection/baghouse control of SO₂ emissions at an emission limit of 106.5 lb/hr.

As originally permitted in 2004, Kiln #7 was constructed with a lime slurry injection system (CD-17a) to control SO₂ emissions (80% control for emissions of SO₂) and a baghouse (CD-17b) to control particulate matter emissions. The flow diagram below shows the control system for this arrangement referred as Alternating Operating Scenario 1 or (AOS1) where the existing lime slurry system injects the hydrated lime calcium-based sorbent into the ductwork prior to the baghouse.



The facility would like to add a sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (CD-17c) as an available SO₂ control alternative to the existing lime slurry injection system. The sodium hydroxide (NaOH) sorbent-based packed-bed scrubber will be installed in the ductwork after the baghouse, eliminating reacted and unreacted calcium-based sorbent from

the baghouse catch. The flow diagram for this Alternating Operating Scenario 2 or (AOS2) is shown below.



While both the existing lime slurry injection system and the proposed new alternative wet scrubber are both capable of effective SO₂ control, each system has its own strong points and weak points.

The positive benefits of the proposed new wet scrubber system include the capability of enhanced SO₂ control (90% control for emissions of SO₂) and at lower sorbent use rates relative to the lime slurry injection system. The new control system also eliminates the calcium-based reacted and unreacted sorbent in the baghouse catch. Sorbent cost is a major consideration in economical production of lightweight aggregate at the facility. This new enhanced SO₂ control will also allow the new wet scrubber system to accommodate the processing of higher sulfur content aggregate at a lower cost. Elimination of the calcium-based reacted and unreacted sorbent in the baghouse catch will allow better recycling of the baghouse catch material for the manufacture of concrete blocks and other structural concrete production.

This new system however requires a higher feed water use relative to lime slurry injection, and a wet wastewater sludge that must be treated and disposed. With the option to operate either the existing lime slurry injection system or the new wet scrubber system to meet the 106.5 lb/hr SO₂ PSD BACT limit, the facility intends to take advantage of the potential benefits of each system.

This flexibility will allow the facility to select the best control system option to use to accommodate changing process and market conditions, including variable market-driven aggregate production demand, variable aggregate sulfur contents, alternative sorbent costs (sodium hydroxide or lime) and market demand for non-calcium contaminated baghouse catch. The Kiln # 7 (ES-17) and associated control devices will be described as shown below:

ID No.	Emission Source description	Control device ID No.	Control device description
ES-17	lightweight aggregate rotary expanding kiln (35 tons per hour capacity) fired	AOS1 CD-17a	one hydrated lime slurry injection system

PSD, NSPS, Subpart UUU, and CAM	with wood, coal, or natural gas (79.1 million Btu per hour heat input rate)	CD-17b	bagfilter (10,820 square feet of filter area)
ES-17 PSD, NSPS, Subpart UUU, and CAM	lightweight aggregate rotary expanding kiln (35 tons per hour capacity) fired with wood, coal, or natural gas (79.1 million Btu per hour heat input rate)	AOS2 CD-17b CD-17c	bagfilter (10,820 square feet of filter area) and 200 gpm sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system

III. Regulatory Review

Regulatory review for the lightweight aggregate rotary expanding kiln (ES-17) controlled by the existing bagfilter (CD-17b) and the new packed bed scrubber (CD-17c)

1. 15A NCAC 02D .0511: “Particulates from Lightweight Aggregate Processes”

The rule requires lightweight aggregate process shall not cause, allow, or permit any material to be produced, handled, transported or stockpiled without taking measures to reduce to a minimum any particulate matter from becoming airborne to prevent the ambient air quality standards for particulate matter. Particulate matter from stacks serving any lightweight aggregate kiln or lightweight aggregate dryer shall be reduced by at least 95 percent by weight before being discharged to the atmosphere. This 95-percent reduction shall be by air pollution control devices. The lightweight aggregate kiln (ID No. ES-17) is controlled by the bagfilter (CD-17b) which causes the particulate matter emissions reduced by more than 95% by weight before being discharged to the atmosphere.

Testing

The applicant shall demonstrate compliance with the emission limit by testing one kiln each year on a rotating basis (ID Nos. ES-1 through ES-6 and ES-17)

Kilns that are not operating shall not be required to test until operations resume, at which time the units shall be tested within 60 days of start-up.

This required testing rotation shall alternate from one PSD affected kiln (ID Nos. ES-5, ES-6 and ES-17) to one non-PSD affected kiln (ID Nos. ES-1 through ES-4) the following year, according to the schedule established and approved by the DAQ.

If testing demonstrates that the emission control efficiency is greater than or equal to 99% by weight, no further testing is required for the duration of the permit term.

Monitoring/Recordkeeping/Reporting

To ensure compliance, the applicant shall perform inspections and maintenance as recommended by the manufacturer of the bagfilter (CD-17b). In addition to the manufacturer’s inspection and maintenance recommendations, or if there are no manufacturer’s inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include a monthly visual inspection of the system ductwork and material collection unit for leaks and an annual inspection of the bagfilter's structural integrity.

The results of inspection and maintenance shall be maintained in a logbook on-site and made available to DAQ upon request and shall submit the results of any maintenance performed on the bagfilter within 30 days of a written request by the DAQ, including a semi-annual summary report of monitoring and recordkeeping activities.

The lightweight aggregate rotary expanding kiln (ES-17) will continue to be in compliance with this regulation as long as it's controlled by the existing bagfilter (CD-17b).

2. 15A NCAC 2D .0516: "Sulfur Dioxide Emissions from Combustion Sources"

Emissions of sulfur dioxide from the kiln (ES-17) shall not exceed 2.3 pounds per million Btu heat input. Sulfur dioxide formed by the combustion of sulfur in fuels, wastes, ores, and other substances shall be included when determining compliance with this standard.

Compliance of this rule is expected by sulfur dioxide emissions being controlled by the new packed bed scrubber (CD-17c) which has a higher level of control of sulfur dioxide emissions than the existing lime slurry injection system (CD-17a) as mentioned above.

CEMS Monitoring on Kiln # 7 (ID No. ES-17)

The sulfur dioxide emissions on the kiln (ID No. ES-17) is monitored by using a continuous emission monitor system (CEMS) and the addition of the new packed bed scrubber (CD-17c) does not change this requirement.

The SO₂ CEMS shall be operated in accordance with 40 CFR Part 60, Appendix B, "Performance Specifications" and Appendix F, "Quality Assurance Procedures," and as provided below:

- i. Compliance with SO₂ emission standard shall be determined by averaging hourly continuous emission monitoring system values over a 24-hour block period beginning at midnight,
- ii. to compute the 24-hour block average, the average hourly values shall be summed, and the sum shall be divided by 24 and
- iii. a minimum of four data points, equally spaced, is required to determine a valid hour value unless the continuous emission monitoring system is installed to meet the provisions of 40 CFR Part 75.

The SO₂ CEMS on the kiln (ES-17) shall be deemed to be properly operated and maintained if the Percent Monitor Downtime (%MD) does not exceed 2.0 percent.

This %MD is based on the equation below:

$$\%MD = \frac{Total.Monitor.Downtime^*}{(Total.Source.Operating.Time^{**})} \times 100\%$$

The *Total Monitor Downtime* includes Quality Assurance (QA) activities unless exempted by regulation or defined in an agency approved QA Manual. If the source (ES-17) operates less than 2,200 hours during any semiannual period, the source may calculate the %MD using all operating data for the current semiannual period and the preceding calendar quarters until 2,200 hours of data are obtained. The source will be in noncompliance if the quarterly MD is greater than 2%. (See Section 2.1 A. 2. g., of the permit).

Monitoring – Lime Injection Systems and sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system

The permit currently has monitoring requirements for lime injection systems for the kilns (ID Nos. ES-1 through ES-6 and ES-17). The monitoring requirements for the sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (CD-17c) is added to kiln (ES-17).

The applicant shall perform periodic inspections and maintenance of the sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (ID No. CD-17c) as recommended by the manufacturer. In addition, the applicant shall perform an annual inspection of the sodium hydroxide (NaOH) sorbent packed-bed wet scrubber injection system. As a minimum, the annual inspection will include inspection of spray nozzles, sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system and the cleaning/calibration of all associated instrumentation. (See Section 2.1 A. 2. h., through k., of the modified permit).

Reporting

The applicant shall submit a semi-annual summary report of monitoring and recordkeeping activities.

3. 15A NCAC 02D .0524: NSPS Subpart UUU “Standards of Performance for Calciners and Dryers in Mineral Industries”

Kiln No. 7 (ID No. ES-17) is currently subject to the above regulation which has the following emissions standards:

Emissions Limits

Affected Facility	Pollutant	Emission Limit
Kiln No. 7 (ID No. ES-17)	Particulate Matter	0.04 gr/dscf
	Visible Emissions	10 percent

Addition of the sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (CD-17c) to kiln (ES-17) does not change the above emission limits.

Monitoring/Recordkeeping/Reporting

The existing bagfilter (10,820 square feet of filter area, ID No. CD-17b) will ensure compliance with the above particulate matter emission limit.

To ensure compliance with the visible emission limit above, once a week the applicant shall observe the emission points of this source (ID No. ES-17) for any visible emissions above normal. The applicant shall establish "normal" in the first 30 days following the operation of the sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (ID No. CD-17c).

The weekly observation must be made for each week of the calendar year period to ensure compliance with this requirement.

The applicant shall submit a semi-annual summary report of monitoring and recordkeeping activities.

(See Section 2.1 A. 4. a., through g., of the modified permit).

4. 15A NCAC 2D .0530: Prevention of Significant Deterioration – “BACTs for pm, sulfur dioxide and nitrogen dioxide”

A Best Available Control Technology (BACT) determination was performed by the DAQ in accordance with 40 CFR § 51.166(j), Application # 8000003.03C with the issuance of Air Quality Permit No. 03059T30 (issued on March 16, 2004). The following BACT limits for the lightweight aggregate kiln (ID No. ES-17) as follows:

- i. 11 pounds of particulate matter per hour;
- ii. 106.5 pounds of sulfur dioxide per hour;
- iii. 66.5 pounds of nitrogen dioxide per hour;

The applicant is adding a new scrubber system (ID No. CD-17c) to have a higher level of control of the sulfur dioxide emissions. This new control device and the new control system is being evaluated to ensure that the source meets the emissions limits and complies with all BACT requirements.

The addition of this new control device with the configuration of the new control system as described above shall have potential emissions of criteria pollutants as shown in the table below. The table compares the emissions from PSD application submitted in 2003 and this application received in 2018.

Application #s	Potential Criteria Pollutant Emissions (in tpy)						
	PM Testing	PM ₁₀	PM _{2.5}	SO ₂	NO _x ^{AP-42}	CO ^{AP-42}	VOC ^{AP-42}
8000003.03C	48.18	48.18		466.29	291.27	90.66	
8000003.18A	48.2	48.2	0.25	257.98 ^S	291.27	90.45	0.83

Testing Testing approved by DAQ

AP-42 AP-42 emissions factors

^SBased on maximum potential before controls emissions of 589.37 lbs/hr, after controls of 58.9 lbs/hr (with 90% control of SO₂ emissions) and at 8760 hours/year of operation.

Testing for this facility was approved by Stationary Source Compliance Branch (SSCB) of DAQ on 4/19/2012 and was for the emissions of particulate matter, sulfur dioxide, nitrogen oxides and carbon monoxide. However, the applicant has preferred to use the latest AP-42 emissions factors (Volume I, Chapter 11: Mineral Products Industry, **Section 11.20** pertains to “**Lightweight Aggregate**”). (Please note for the same chapter Section “**11.2**” refers to “**Asphalt Roofing**”).

The applicant assumed the PM₁₀ and particulate matter are the same and since the emissions of PM_{2.5} is unknown the applicant assumed the condensable portion of particulate matter as PM_{2.5} emissions. This would result in an emissions of 0.25 tpy of PM_{2.5} and since this emission rate was based on 8760 hours of operation per year, the hourly emissions will be 0.057 lbs per hour. This emissions increase is not being reported as an hourly PM_{2.5} emissions increase since

emissions for this pollutant has not been triggered for this County. The hourly emissions increase for particulate matter, sulfur dioxide and nitrogen oxides were already reported during application 8000003.03C.

The table above shows an overall reduction of annual sulfur dioxide emissions with this new alternate operating scenario (AOS2).

Recent review of the EPA's RACT/BACT/LAER Clearinghouse (RBLC) database indicates good combustion control is still the best option for the existing lightweight aggregate kiln for control of NO_x emissions. The source is expected to demonstrate compliance with the above nitrogen dioxide BACT limits with this new alternate operating scenario (AOS2).

No increase in emissions of greenhouse gases are expected with this new alternate operating scenario (AOS2). Also, as per 15A NCAC 02D .0544(a) "a major stationary source or major modification shall not be required to obtain a prevention of significant deterioration (PSD) permit on the sole basis of its greenhouse gases emissions." A significant increase in at least one non-GHG pollutants, such as PM, PM₁₀, PM_{2.5}, NO_x, CO, VOC shall occur before greenhouse gas emission increases are evaluated for PSD purposes. Since no increase in any non-GHG pollutants are expected, this application is not evaluated for GHG emissions.

Testing

The applicant demonstrates compliance with the above PM emission limits (including condensable particulate as measured by Method 202) by testing one kiln (**ID Nos. ES-1 through ES-6, and ES-17**) each year on a rotating basis.

Kilns that are not operating shall not be required to test until operations resume, at which time the kiln shall be required to be tested within 60 days of start-up. The required testing rotation alternates from one PSD affected kiln (**ID Nos. ES-5, ES-6 and ES-17**) to one non-PSD affected kiln (**ID Nos. ES-1 through ES-4**) the following year, according to the testing schedule established and approved by DAQ.

If the test results indicate that the particulate matter (including condensable particulate as measured by Method 202) emission rate exceeds 80% of the emission limits the applicant shall perform additional testing for particulate matter (including condensable particulate as measured by Method 202) once every year until a subsequent test indicates particulate matter emissions are less than or equal to 80% of the emission limits.

The applicant shall demonstrate compliance with the SO₂ emission limits above by testing one kiln (**ID Nos. ES-1 through ES-6 and ES-17**) each year on a rotating basis. Kilns that are not operating shall not be required to test until operations resume, at which time the kiln shall be required to be tested within 60 days of start-up.

The required testing rotation shall alternate from one PSD affected kiln (**ID Nos. ES-5, ES-6 and ES-17**) to one non-PSD affected kiln (**ID Nos. ES-1 through ES-4**) the following year, according to the testing schedule previously established and approved by DAQ.

The applicant shall demonstrate compliance with the NO_x emission limits above by testing one

kiln (**ID Nos. ES-1 through ES-6 and ES-17**) each year on a rotating basis. Kilns that are not operating shall not be required to test until operations resume, at which time the kiln shall be required to be tested within 60 days of start-up.

The required testing rotation shall alternate from one PSD affected kiln (**ID Nos. ES-5, ES-6 and ES-17**) to one non-PSD affected kiln (**ID Nos. ES-1 through ES-4**) the following year, according to the testing schedule previously established and approved by DAQ.

Monitoring/Recordkeeping for SO₂ – Kiln No. 7

The applicant shall demonstrate compliance with the emission limit for Kiln No. 7 (ID No. ES-17) when operating the hydrated lime slurry injection system (ID No. CD-17a) or the sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (ID No. CD-17c) by monitoring and recording the 24-hour average of SO₂ emissions (in lb/mmBtu) using a CEMS, as required under 2D .0516 regulation (See Section III 2., of this review, above).

The SO₂ CEMS on the kiln shall be installed, calibrated, maintained, tested, and operated in accordance with 40 CFR Part 60, Appendix B, “Performance Specifications” and Appendix F, “Quality Assurance Procedures.”

The applicant shall monitor and record the 24-hour average heat input to the kilns (in mmBtu/hour), including contributions from coal and rock feeds. The calculation to record the 24-hour average SO₂ emission rates (in lb/hr) for the kiln is according to the following equation:

$$S = (C * H_{coal} + R * H_{rock}) (E_{SO_2})$$

Where:

S	=	Sulfur dioxide emission rate (in lb/hr);
C	=	Coal feed rate (in lb/hr);
H _{coal}	=	Heat content of coal (in mmBtu/lb);
R	=	Rock feed rate (in lb/hr);
H _{rock}	=	Heat content of rock (in mmBtu/lb); and
E _{SO2}	=	Sulfur dioxide emission rate as measured by the CEMS (in lb/mmBtu).

The hourly SO₂ emission limit is required to comply with the 24-hour National Ambient Air Quality Standard (NAAQS). The applicant may use 24-hour average values in the calculation above to demonstrate compliance with the emission limit and associated NAAQS.

Reporting

The applicant shall submit a semi-annual summary report of monitoring, recordkeeping activities, a summary of SO₂ emissions monitoring data, coal supplier certifications and calculations of the pounds of SO₂ per million Btu heat content of the coal per total shipment. (See Section 2.1 A. 5. a., through m., of the modified permit).

The above testing, monitoring, recordkeeping and reporting requirements will ensure with the above BACT limits.

Project Aggregation

Performing several small projects in an attempt to avoid PSD permitting is not allowed under PSD regulations. The NCDAQ typically applies the economic relationship test to determine if two projects should be aggregated. (EPA published in the Federal Register on Thursday, January 15, 2009, guidelines for aggregation of sources and their relationship regarding NSR applicability (http://www.epa.gov/nsr/fr/20090115_2376.pdf).

A survey of three years of all the applications that were submitted to DAQ for permit modification were reviewed below:

- 1) May 20, 2014, the facility requested (Application # 8000003.16A) to remove the New Source Performance Standard (NSPS) Subpart UUU requirement that Kiln No. 7 visible emissions be monitored with a Continuous Opacity Monitor (COM) as a one-step significant modification using procedures pursuant to 15A NCAC 02Q .0501(d)(2).
- 2) Facility renewed their permit (Application # 8000003.16B, received 05/24/2016)

DAQ does not see an intent to avoid PSD, since the projects were for renewal and notices.

5. 15A NCAC 02D .1402: "RACT Applicability"

RACT, or Reasonably Available Control Technology, is required on existing sources in areas that are not meeting national ambient air quality standards (i.e., non-attainment areas).

This County was once in "non-attainment" status and based on the determination during the permit application (# 8000003.08D) review this source does not need any additional controls.

The applicant is adding the new sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (CD-17c) to increase the efficiency of SO₂ capture. The County is now in attainment, however, the RACT determination during processing of applicant # 8000003.08D still stands and no additional controls are required to comply with the RACT.
(See Section 2.1 A. 6., of the permit).

6. 15A NCAC 02D .0535: "Excess Emissions Reporting and Malfunctions"

As per the requirements of this rule the applicant for each permit modification, shall amend or up-date the malfunction abatement plan (MAP) as approved by the DAQ, for the kiln (ID No. ES 17). This amended or up dated documents shall be submitted to the Regional Supervisor.
(See Section 2.1 A. 7., of the permit).

7. 15A NCAC 02D .0614: "Compliance Assurance Monitoring (CAM)" (for SO₂ emissions)

As per this rule, a CAM plan is required for:

- (1) Sources subject to an emission limitation or standard for the applicable regulated air pollutant;

- (2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and
- (3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source.

This source, Kiln No. 7 (ID No. ES-17), is already subject to a CAM plan for SO₂ emissions.

Indicator Range

The applicant shall conduct an inspection of the lime slurry injection system (ID No. CD-17a) or the new sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (ID No. CD-17c) each time the hourly emission rate from the kiln (ID No. ES-17) is equal to or above 101.2 lb/hr (i.e., within 5% of the PSD emission limitation as per Section 2.1 A. 5. b. ii., of the modified permit Or See Section III 4., of this review, above, for 2D .0530 applicability).

An excursion occurs when the SO₂ hourly emission rate is greater than 101.2 lb/hr. The excursion triggers corrective action and reporting requirement.

Performance Criteria

The applicant shall ensure that data is representative of the operation of the kiln and associated lime injection system or the new sodium hydroxide (NaOH) sorbent packed-bed wet scrubber the CEMS measurements shall be made at the emission point. The CEMS shall measure and record the sulfur dioxide emission rate in the stack once every 15-minutes so that there are four data points per hour.

QA/QC Practices

For Kiln No. 7 (ID No. ES-17), when operating the hydrated lime slurry injection system (ID No. CD-17a) or the sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (ID No. CD-17c) the CEMS shall follow the quality assurance and quality control procedures provided in 40 CFR 60, Appendix F, including a daily CEMS calibration, quarterly audits, and annual relative accuracy test audit (RATA) testing.

Averaging Period

The averaging period for compliance with the SO₂ emission to meet compliance with both 15A NCAC 02D .0516 and 15A NCAC 02D .0530 are determined on a 24-hour basis.

Reporting

The applicant shall submit a semi-annual summary report of monitoring, recordkeeping activities, including summary information on the number, duration, and cause of excursions or exceedances and the corrective actions taken, summary information on the number, duration, and cause for monitor downtime incidents.

(See Section 2.1 A. 8. a., through h., of the modified permit).

8. 15A NCAC 02D .0614: “Compliance Assurance Monitoring (CAM)” (for particulate matter emissions)

This source is subject to a CAM plan for the emissions of particulate matter emissions since the kiln has potential pre-control device emissions of more than 100 tons per year and is subject to an emission limitation and uses a control device (CD-17b) to achieve compliance with the emission limitation. However, there are no changes to this kiln and to the control device used to control the emissions of particulate matter from this kiln. Thus, there are no changes to the existing emission limit, monitoring requirements, control technology, monitoring approach, indicator range, averaging period and the reporting requirements.

State Only

9. 15A NCAC 2D .1100 – Control of Toxic Air Pollutants.

This facility is subject to the above regulation and has facility wide emissions limits for the emissions of Arsenic, Benzo(a)pyrene, Benzene, Beryllium, Bromine, Cadmium, Formaldehyde, Hydrogen Chloride, Hydrogen Fluoride, Manganese and Mercury. Kiln ES-17 has a limit of Soluble Chromate Compounds as Chromium (VI) Equivalent of less than 0.140 lb/day.

The NaOH (sorbent) used in the installation of the alternative packed-bed scrubber is not a TAP and not known to create any new TAP reaction products when scrubbing a coal-fired lightweight aggregate kiln exhaust. There are no changes to the above TAPs limits or with the applicant’s maintaining of records or process operational information to determine compliance with this regulation. Compliance is expected.

IV. NSPS, NESHAPS, PSD, Attainment Status, 112(r) and CAM

NSPS

Kiln No. 7 (ID No. ES-17) is currently subject NSPS Subpart UUU “Standards of Performance for Calciners and Dryers in Mineral Industries”
(See Section III. 3., of this review, above)

NESHAP/MACT

The facility is currently not subject to any MACT regulations.

Attainment Status and PSD

This area is classified as attainment with respect to the National Ambient Air Quality Standards (NAAQS) for particulate, sulfur dioxide, ozone, nitrogen dioxide, carbon monoxide and lead.

112(r)

This facility is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the thresholds in this rule.

CAM

The source (ES-17) is subject to the CAM plan for SO₂ emissions and particulate matter emissions. (See Section III. 6., and 7., of this review, above)

V. Professional Engineer Seal, Compliance with House Bill 952, Zoning Consistency Determination and Application Type

Professional Engineer Seal

As per NCAC 2Q .0112, "Applications Requiring Professional Engineer Seal" - The control device discussed, including the options to comply with BACT limits were technically reviewed and approved for this application with a North Carolina Certified Professional Engineer.

Compliance with House Bill 952

As per Section III. 9., of the review, above, there is no expected increase in toxics from the addition of the new scrubber and will not present an unacceptable risk to human health and thus comply with North Carolina General Statute (NCGS) 143-215.107(a)(5) (House Bill 952).

Consistency Determination

The applicant did notify the County's planning and zoning Department of their intention to add a new scrubber to their facility. This was also verified by the Rowan County Planning and Development Department, on 2/21/2018, stating the facility is zoned as IND.

Zoning Department.

Application Type

As mentioned in the review the current operating scenario AOS1 is already permitted and in accordance with 2Q .0512. The permit contains a provision stating that compliance with the terms, conditions, and limitations of the Title V permit shall be deemed in compliance with applicable requirements specifically identified in the permit.

With the issuance of the modified permit, the source (ES-17) can be operated with the alternate scenario AOS2. Rules and regulation pertaining to alternating scenario AOS2 will not be shielded and might contravene the existing requirements in the current permit.

This application will be processed as a Significant 2Q .0501(d) modification (one step), i.e., it will be subject to a 30-day public notice and 45-day EPA review.

VI. Compliance Status, Regional Office & Applicant Review

The facility was inspected on 08/30/2017 by Ms. Denise Hayes of the Mooresville Regional Office. The inspection report stated the facility was in compliance with the applicable air quality regulations.

The applicant, the Regional Office and the Stationary Source Compliance Branch (SSCB) of DAQ were provided a copy of this modification permit and their comments were taken into account.

On 8/13/2018 Ms. Denise Hayes of the Regional Office responded by stating “Hey GP. I do not have any comments on this draft permit and review at this time.”

On 8/17/2018 Mr. Gary Yoder, consultant for the applicant responded “The only comment I’ve received from Stalite on the draft is regarding the 200 gpm liquid inj rate description of the new scrubber. I presented the operating design of 200 gpm on Form C of the application. They will have to do some optimization once installed that will likely result in a rate somewhere around 200 gpm. The question is if the actual rate is 10 – 15 gpm below or above 200, would that be an issue? It will also likely fluctuate during operation based on the sulfur content of the coal and rock. Otherwise the draft permit looks great.”

As per discussion with the applicant this new scrubber (CD-17c) is described as “sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system.”

VII. Changes made in the proposed Permit.

Table of changes made in Air Quality Permit No. 03059T49

Page(s)	Section	Description of Change(s)
3	Source table	Added sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (CD-17c) to kiln (ES-17)
7	2.1 A.	Added sodium hydroxide (NaOH) sorbent packed-bed wet scrubber system (CD-17c) to kiln (ES-17)
10	2.1 A. 2. h.,	Added packed-bed wet scrubber system (CD-17c) to monitoring requirements.
10	2.1 A. 2. k.,	Added packed-bed wet scrubber system (CD-17c) to periodic inspections and maintenance requirements.
12	2.1 A. 4. d.,	Added packed-bed wet scrubber system (CD-17c) to monitoring requirements.
14	2.1 A. 5. h.,	Changes to monitoring and recordkeeping for scrubber system (CD-17c)
15	2.1 A. 8. a.,	Added packed-bed wet scrubber system (CD-17c) to CAM plan for SO ₂ emissions.
15	2.1 A. 8. c.,	Added packed-bed wet scrubber system (CD-17c) to the indicator range for CAM plan for SO ₂ emissions.
16	2.1 A. 8. e. i.,	Added packed-bed wet scrubber system (CD-17c) to the performance criteria for CAM plan for SO ₂ emissions.
17	2.1 A. 8. f. i.,	Added packed-bed wet scrubber system (CD-17c) to the QA/QC practices for CAM plan for SO ₂ emissions.
32 through 41	General Conditions	Updated